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For: SEMI-FUSIBLE LINK SYSTEM FOR A MULTI-LAYER INTEGRATED  
CIRCUIT AND METHOD OF MAKING SAME

1           1.     A semi-fusible link system for a multi-layer integrated circuit including  
2     active circuitry on a first layer having a metal one layer comprising:  
3                 a semi-fusible link element on a second layer having a metal two layer  
4     adapted for interconnecting with said metal one layer; and  
5                 a selector circuit disposed on said first layer.

1           2.     The semi-fusible link system of claim 1 further including at least one  
2     interconnection coupling said metal one layer with said metal two layer for providing an  
3     electrical coupling between said semi-fusible link element and said active circuitry.

1           3.     The semi-fusible link system of claim 1 further including an array of semi-  
2     fusible link elements disposed on said second layer.

1           4.     The semi-fusible link system of claim 1 in which said selector circuit selects  
2     one of said array of said semi-fusible link elements.

1           5.     The semi-fusible link system of claim 3 in which said selector circuit  
2     includes a transistor.

1           6.     The semi-fusible link system of claim 5 in which said selector circuit  
2     includes an NMOS transistor.

1           7.     The semi-fusible link system of claim 1 in which said selector circuit  
2 includes an NMOS transistor.

1           8.     The semi-fusible link system of claim 1 in which said semi-fusible link  
2 element includes silicon chromium.

1           9.     The semi-fusible link system of claim 1 in which said second layer is located  
2 above said first layer.

1           10.    The semi-fusible link system of claim 1 in which said semi-fusible link is  
2 disposed above said active circuitry.

1           11.    The semi-fusible link system of claim 1 in which said semi-fusible link is  
2 disposed above said active circuitry and said selector circuit.

1           12.    The semi-fusible link system of claim 1 in which said active circuitry blows  
2 said semi-fusible link element to effect a change in a parameter of said integrated circuit.

1           13.    The semi-fusible link system of claim 1 in which said selector circuit blows  
2 said semi-fusible link element to effect a change in a parameter of said integrated circuit  
3 selector circuit.

1           14.    The semi-fusible link system of claim 1 in which said semi-fusible link  
2    element includes a thin film resistor.

1           15.     A semi-fusible link system for a multi-layer integrated circuit including  
2     active circuitry on a first layer having a metal one layer, comprising:  
3                 a semi-fusible link element on a second layer having a metal two layer  
4     adapted for interconnecting with said metal one layer, said second layer being above said  
5     first layer;  
6                 at least one interconnection coupling said metal one layer with said metal  
7     two layer for providing an electrical coupling between said semi-fusible link element and  
8     said active circuitry; and  
9                 a selector circuit disposed on said first layer.

1           16.     The semi-fusible link system of claim 15 in which said selector circuit  
2     includes a transistor.

1           17.     The semi-fusible link system of claim 16 in which said selector circuit  
2     includes an NMOS transistor.

1           18.     The semi-fusible link system of claim 15 in which said semi-fusible link  
2     element includes silicon chromium.

1           19.     The semi-fusible link system of claim 15 in which said semi-fusible link  
2     element includes a thin film resistor.

1           20.     The semi-fusible link system of claim 15 in which said semi-fusible link is

2 disposed above said active circuitry.

1 21. The semi-fusible link system of claim 15 in which said semi-fusible link is  
2 disposed above said active circuitry and said selector circuit.

1 22. The semi-fusible link system of claim 15 in which said active circuitry blows  
2 said semi-fusible link element to effect a change in a parameter of said integrated circuit.

1 23. The semi-fusible link system of claim 15 in which said selector circuit blows  
2 said semi-fusible link element to effect a change in a parameter of said integrated circuit  
3 selector circuit.

1           24.    A semi-fusible link system for a multi-layer integrated circuit including  
2   active circuitry on a first layer having a metal one layer, comprising:

3                   a thin film resistor semi-fusible link element on a second layer having a  
4   metal two layer adapted for interconnecting with said metal one layer, said second layer  
5   being above said first layer;

6                   at least one interconnection coupling said metal one layer to said metal two  
7   layer for providing an electrical coupling between said semi-fusible link element and said  
8   active circuitry; and

9                   a selector circuit including a select transistor disposed on said first layer.

1           25.    The semi-fusible link device of claim 24 in which said semi-fusible link  
2   element includes silicon chromium.

1           26.    The semi-fusible link system of claim 24 in which said semi-fusible link is  
2   disposed above said active circuitry.

1           27.    The semi-fusible link system of claim 24 in which said semi-fusible link is  
2   disposed above said active circuitry and said selector circuit.

1           28.    The semi-fusible link system of claim 24 in which said active circuitry blows  
2   said semi-fusible link element to effect a change in a parameter of said integrated circuit.

1           29.    The semi-fusible link system of claim 24 in which said selector circuit blows

- 2        said semi-fusible link element to effect a change in a parameter of said integrated circuit
- 3        selector circuit.

1           30.    A semi-fusible link system for a multi-layer integrated circuit including  
2   active circuitry on a first layer having a metal one layer comprising:  
3                   a semi-fusible link element on a second layer having a metal two layer  
4   adapted for interconnecting with said metal one layer; and  
5                   a selector circuit disposed on said first layer, one of said active circuitry and  
6   said selector circuit for blowing said semi-fusible link element to effect a change in a  
7   parameter in said integrated circuit.



1           31.    A method for manufacturing a semi-fusible link system for a multi-layer  
2 integrated circuit, the method comprising:  
3               forming active circuitry and a selector in a silicon substrate;  
4               depositing a first dielectric layer over said substrate;  
5               depositing a metal one layer over said contacts;  
6               depositing a second dielectric layer over said metal one layer;  
7               forming a semi-fusible link element with a thin film resistor body on said  
8 second dielectric layer;  
9               depositing a third dielectric layer over said semi-fusible link element;  
10              depositing a metal two layer on said third dielectric layer;  
11              depositing a passivation layer of said third dielectric layer; and  
12              providing an interconnection between said metal one layer and said metal  
13 two layer.

1           32.    The semi-fusible link device of claim 31 in which said thin film resistor  
2 body includes silicon chromium and/or titanium-tungsten.

1           33.    The semi-fusible link device of claim 31 in which said metal one layer  
2 includes a layer of aluminum-copper and/or a layer of titanium-nitrite.

1           34.    The semi-fusible link device of claim 31 further including the step of  
2 providing contacts in said first and said third dielectric layers.